

Middle/Junior High School Student Foodservice Survey

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**National Food Service Management Institute
The University of Mississippi**

Location

The National Food Service Management Institute (NFSMI) was established by Congress in 1989 at The University of Mississippi in Oxford. The Institute operates under a grant agreement with the United States Department of Agriculture Food and Consumer Service. NFSMI's Division of Applied Research is located at The University of Southern Mississippi in Hattiesburg.

Mission

The NFSMI is a catalyst for the continuous improvement of Child Nutrition Programs and services that promote healthy eating behaviors in children. As a national center, the NFSMI provides information, conducts applied research, and offers technical assistance, training, and education opportunities and materials using appropriate technology.

Vision

All activities and programs of the NFSMI are conducted in support of a vision to be a recognized resource and partner with local, state, and national child nutrition personnel and other stakeholders in safeguarding the health and well-being of the nation's children by giving children the knowledge to make healthy food choices and an opportunity to enjoy nutritious meals.

Programs and Services

- ◆ Quality publications appropriate for child nutrition personnel at an affordable price
- ◆ Applied research for development of effective child nutrition management practices
- ◆ Workshops and seminars for training child nutrition personnel
- ◆ National network of trainers
- ◆ Training materials developed by states for resale
- ◆ Education and training standards and materials
- ◆ Free training and information teleconferences through Nutrition Satellite Network
- ◆ Clearinghouse for information retrieval and dissemination
- ◆ Technical assistance through toll-free "help" lines

For more information, please call NFSMI at 1-800-321-3054.

NFSMI - Building the Future Through Child Nutrition

PREFACE

Students today are more sophisticated than years past and are exposed at an early age to a variety of dining experiences including fast foods, ethnic cuisine and fine dining. Many are raised in an environment where fast food restaurants and food courts have replaced the home cooked meal and the family eating together around the dining room table. This has influenced the attributes by which students evaluate school foodservice, their satisfaction and decision to participate. These attributes change as the students develop and experience the dynamic global environment.

Changes in our society are putting great pressure on Child Nutrition Programs (CNPs) to monitor and respond to the changing wants and needs of the student customers. The best method to monitor students' wants and needs is to survey them regularly. However, the development of a valid and reliable survey instrument is a complex and time-consuming task. As a result, The National Food Service Management Institute (NFSMI), Division of Applied Research began a multi year project to develop student foodservice surveys. This report details steps involved with the development of the middle/junior high school foodservice survey.

Dr. Mary Kay Meyer brought this project to reality. **Ms. Jewel Adams** assisted with the formatting of the manuscript. The researchers at the Division of Applied Research thank the many directors/supervisors who volunteered to pilot the survey.

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MIDDLE/ JUNIOR HIGH SCHOOL STUDENT FOODSERVICE SURVEY

EXECUTIVE SUMMARY

Changes in our society are influencing Child Nutrition Programs (CNP). Students are not satisfied with the traditional meals of the past. They are seeking quality meals that meet their diverse wants and needs for food, service and dining ambiance. These wants and needs are often changing faster than CNP professionals can monitor. The best method to determine students' wants and needs is to survey them regularly. However, the development of a valid and reliable survey instrument is a complex time-consuming task.

As a result, the National Food Service Management Institute (NFSMI), Division of Applied Research began a multi year project to develop student satisfaction surveys. This report identifies steps involved with the development of the middle/junior high school foodservice survey. The objectives of the study were:

- To develop a valid and reliable survey to be used by CNP professionals to measure middle/junior high school students' satisfaction with the school foodservice and nutrition program.
- To determine if student satisfaction is related to participation in middle/junior high school foodservice.

The initial steps in the development of the middle/junior high school foodservice survey were coupled with the development of the high school foodservice survey. A complete description of the initial steps was reported in the High School Foodservice Survey technical report (NFSMI-R-29-97).

To meet the needs of the middle/junior high population based on initial pilot data and student comments, changes were made to the format, questions and language. Factor analysis was applied to develop the construct and shorten the survey. The revised survey was composed of fifty (50) questions.

The revised survey was pilot tested in selected districts in Arizona, Massachusetts, New York, Texas, New Hampshire, California, Illinois and Pennsylvania. Volunteers for the study were solicited from Meal Talk, an Internet chat group of CNP professionals. Four thousand seven hundred (4,700) surveys were mailed to the participating schools. A total of 2,566 usable surveys was returned.

MAJOR FINDINGS

- A valid and reliable instrument for assessing middle/junior high school satisfaction with foodservice was developed.
- Student satisfaction was related to participation.
- Student satisfaction was related to factors associated with food quality, price and staff.
- Middle/junior high school student satisfaction was related to specific questions concerning: taste of the food, politeness of servers and cashiers, price/value relationship, appearance of main dishes on the serving line, cheerfulness of the dining area, menu including food students like, servers and cashiers smiling and greeting students, servers and cashiers treating students with respect and the appearance of the food.
- Significant differences were found between groups who *had a choice* and *had no choice*, males and females, and grades.
- Students who eat breakfast at least one day per week were more satisfied than those students who never eat breakfast.

RECOMMENDATIONS

- Further research is needed for the development of reliable and statistically valid satisfaction surveys for elementary students, parents, teachers and administrators.
- Further research is needed to determine the impact on student satisfaction when improvements in the school foodservice are made to any attribute identified by students as important.

MIDDLE/JUNIOR HIGH SCHOOL FOODSERVICE SURVEY

INTRODUCTION

Today we are experiencing a dynamic society. Gueber and Berry (1993) have identified several societal changes that are affecting the wants and needs of children. The metamorphosis of the homecentered mother into the working mother has had a dramatic impact on our lives. The roles of parents and children no longer follow traditional patterns. Children today are often responsible for getting up and off to school with no assistance. We have the most well-educated generation in history. Children and teens are wise beyond their years. They are more savvy and aware of their environments, social and health issues than ever before. Children are growing up with more control over their lives. Many have a great deal of control over what they eat and where they eat it. Millions of children have been given responsibilities from buying groceries for dinner to cleaning the house, and cooking themselves after school snacks to getting dinner started for their working families. As a result they are more aware of brands and advertising because they see them as consumers. We are also experiencing the most ethically diverse society in history. In 1990, 38.6% of the population under age five was non white.

These changes in our society are influencing our Child Nutrition Programs (CNP). Students are not satisfied with the traditional meals of the past. They are seeking quality meals that meet their diverse wants and needs for food, service and dining ambiance. These wants and needs are often changing faster than CNP professionals monitor. The best way to determine students' wants and needs is to ask them. However, the development of valid and reliable survey instruments is a complex time-consuming task.

As a result, the National Food Service Management Institute (NFSMI), Division of Applied Research began a multi year project to develop student satisfaction surveys. This report identifies steps involved with the development of the middle/junior high school student satisfaction survey, the second satisfaction survey to be developed. The objectives of the study were:

- To develop a valid and reliable survey to be used by CNP professionals to measure middle/junior high school students' satisfaction with the school foodservice and nutrition program.
- To determine if student satisfaction is related to participation in middle/junior high school foodservice.

METHOD

As reported in the *High School Foodservice Survey* technical report (NFSMI-R-29-97), initial steps in the development of the middle/junior high school foodservice survey were coupled with the development of the high school foodservice survey. The high school foodservice survey project hypothesized that the same survey could be used for the middle/junior high and high school. After analyzing data from the initial pilot, it was determined high school and middle/junior high students were different in their wants and needs for school foodservice. Results are shown in Table 1. The two populations would require separate surveys.

Following the development of the high school foodservice survey, the development of the middle school foodservice survey was begun. As part of the initial pilot, teachers were requested to discuss the survey with the students and record words and questions that were unclear. Responses included:

Vocabulary not understood:

6th & 7th grade: aroma, adequate, economy, entrees, ethnic and cultural preferences, hoagies, and atmosphere

8th grade: promotions, hoagies, economical, aroma, appetizing, ethnic

9th grade: religious preferences

General comments:

Questions 30, 16, 22-51 are difficult to answer using the present scale.

What are special foods and special meals?

As a result of data gathered from the initial pilot and student comments, changes were made to the format, questions and language to meet the needs of the middle/junior high school population. Factor analysis was applied to develop the construct and shorten the survey. Results are shown in Table 2. Questions were eliminated that double loaded, failed to load or loaded at less than .51. The revised survey was composed of fifty (50) questions.

Second Pilot

Based on what was learned from the high school survey, schools were screened for percentage rates of free and reduced meals served. Schools with a moderate to low ratio of free and reduced meals were selected. This was because students who "have a choice" answer the survey differently than students who feel they "have no choice" based on the question, "What is the number one reason you eat school lunch?" Although students eligible for free and reduced meals also have a choice whether to eat the meals provided, researchers wanted to minimize the potential for many students to view

the mealtime experience as one with "no choice". Table 3 shows a profile of schools. Each school was asked to survey a statistically significant sample representing all grades. Four thousand seven hundred (4,700) surveys were mailed to participating districts. Letters to introduce the survey to teachers, principals and students were sent with the surveys. Also included was a separate open-ended question sheet for students to complete. These are found in Appendix A.

A total of 2,566 usable surveys was returned, a return rate of 53%. A profile of students returning surveys is shown in Table 4. One district's completed surveys were never received. It is believed they were lost in the US postal system. One district had difficulty with one of three schools and one district was not able to gain cooperation of school principals.

Students who answered more than six times "I don't know" were eliminated from the study. This group equaled 202. These were eliminated because it was felt by the researchers that if a student answered more than six times "I don't know" they were not taking the survey seriously. By including these, the curve was skewed away from the mean.

Analysis showed seven questions had a high percentage of "I don't know" answers.

- 16. I like the quality of the ingredients used.
- 21. I like how the servers and cashiers look.
- 23. Nutrition information is posted.
- 25. Meals are planned for healthy eating.
- 31. Information on calories in food is available.
- 39. The choices of food allow me to meet special dietary needs (such as low fat or diabetic diet).
- 46. The choices of food allow me to meet my religious needs.

These questions were removed from the study because it was felt students either did not understand the question, the school was not providing the service, or the students truly did not know the answer.

Students answering "I have no other choice" and "my parents make me" to whether they eat or do not eat in the school foodservice (question 2) were eliminated from the factor analysis. This group totaled 501. This group was removed because there was a significant difference in their response to the survey. It was hypothesized by the researchers that the group "have no other choice" and "my parents make me" behaved as a captive audience and therefore did not represent the general population of students choosing to eat school meals.

Factor analysis using *SPSS*[®] was used to determine the constructs in the scale and reduce the number of items used for analysis. Table 5 shows the loading score for all questions. The question "How

happy are you with the school foodservice overall?" was removed from the factor analysis. This question was used as a dependent variable in further analysis and could not be included in a factor.

The final survey is composed of thirty-four (34) questions. Table 6 shows the factors and reliabilities for the final survey.

The relationship between satisfaction, using the question *How happy are you with the school foodservice overall ?*, and the factors for students who felt they "have a choice" and "have no choice" was determined through multiple linear regression. Multiple linear regression was also used to determine the relationship between the dependent variable satisfaction (*How happy are you with the school foodservice overall?*) and independent variables (*the attributes desired by the students*) for students who felt they "have a choice" and "have no choice".

To determine if differences existed between those students who never ate, ate 1-3 times per week, and those that ate 4-5 times per week; grades, and sex analysis of variance was completed. A focus group of CNP professionals was used to determine the categories of eating frequency. This is reported in more detail in the High School Foodservice Survey technical report (NFSMI -R-29-97).

RESULTS

Factor Analysis

Analysis showed students were interested in five factors:

- Food Quality
- Ambiance
- Staff
- Time
- Price

(Factors are listed in order of loading into the model and percentage of variance explained).

Multiple Regression

"Have a choice"

Three of the factors correlated with satisfaction: food quality, price and staff ($p < .05$).

Nine questions correlated with the dependent variable satisfaction ($p < .05$).

- The school menu includes food I like

- Main dishes on the serving line (such as spaghetti and chicken) look good.
- I like the taste of the food
- Servers and cashiers are polite
- School foodservice prices are OK for what I get
- Servers and cashiers smile and greet me when I am served
- I like how the food looks
- The dining area is cheerful and upbeat
- Servers and cashiers treat me with respect

"Have no choice"

Two factors correlated with satisfaction: quality and price ($p < .05$)

Five questions correlated with the dependent variable satisfaction ($p < .05$)

- The school menu includes food I like
- Main dishes on the serving line (such as spaghetti or chicken) look good
- I like the taste of the food
- School foodservice prices are OK for what I get
- Students are not allowed to misbehave in the dining area

(All factors and variables are listed in descending order of Beta value)

Analysis of Variance

Frequency of eating

Analysis of variance showed a significant difference between those students who never eat, eat 1-3 times per week and those that eat 4-5 times per week (frequently) for ambiance, price, staff, and time ($p < .05$). Significant differences were found between groups that never eat, eat 1-3 times per week, and eat 4-5 times per week and between groups that never eat and eat 1-3 times per week for satisfaction (How happy are you with the foodservice overall?) and the factor food quality ($p < .05$). Results are shown in Table 7. This showed that satisfaction was related to participation. However, it could not be determined if satisfaction was driving participation or participation driving satisfaction.

Choice of eating

A highly significant difference was found between students that felt they *had a choice* and those that felt they *had no choice* for satisfaction and each factor ($p < .001$).

Gender

Males and females differed on how they evaluated satisfaction, ambiance and price. Overall, females were more satisfied. Results are shown in Table 8.

Grade

A significant difference was found between grades for satisfaction. Sixth grade was more satisfied than seventh and eighth grade. A significant difference was found between sixth grade, seventh grade and eighth grade and between seventh grade and eighth grade on satisfaction ($p < .05$). For the factors food quality, ambiance, price, staff, and time a significant difference was found between sixth grade, seventh grade and eighth grade ($p < .05$). Seventh grade and eighth grade were not significantly different on these variables ($p < .05$). Results are shown in Table 9.

Breakfast consumption

One very interesting piece of data from this study showed that if students ate breakfast at least one day per week they were more satisfied than students who never ate breakfast.

CONCLUSIONS

- A valid and reliable instrument for assessing middle/junior high school satisfaction with foodservice was developed.
- Student satisfaction was related to participation.
- Student satisfaction was related to factors associated with food quality, price and staff.
- Middle/junior high school student satisfaction is related to specific questions concerning: taste of food, politeness of servers and cashiers, price/value relationship, appearance of main dishes on the serving line, cheerfulness of the dining area, menu including food students like, servers and cashiers smiling and greeting students, servers and cashiers treating students with respect and the appearance of the food.
- Significant differences were found between groups who *had a choice* and *had no choice*, males and females, and grades.
- Students who eat breakfast at least one day per week are more satisfied than those students who never eat breakfast.

RECOMMENDATIONS

- Further research is needed for the development of valid and statistically valid satisfaction surveys for elementary students, parents, teachers and administrators.
- Further research is needed to determine the impact on student satisfaction when improvements in the school foodservice are made to any attribute identified by students as important.

Table 1

**MIDDLE/JUNIOR HIGH AND HIGH SCHOOL FACTORS
FIRST TEST OF STUDENT SATISFACTION SURVEY**

	Middle		High	
Question	Factor	Factor Loading	Factor	Factor Loading
1. How happy are you with the school cafeteria overall?	Overall Satisfaction	.68712	Overall Satisfaction	.55315
2. How happy are you with the variety of foods offered?	Overall Satisfaction	.66104	Overall Satisfaction & Cost	.65876 .52439
3. How happy are you with what you get for what you pay?	Overall Satisfaction	.55151	Overall Satisfaction	.52124
4. How happy are you with the quality of the foods served?	Overall Satisfaction	.69294	Overall Satisfaction	.53510
5. How happy are you with the nutritional value of the foods offered?	Overall Satisfaction	.62100	Overall Satisfaction	.49552
6. How happy are you with the atmosphere of the cafeteria?	Overall Satisfaction	.52752	Overall Satisfaction & Factor 10	.38996 .41598
7. How happy are you with the promotions/special meals offered?	Overall Satisfaction	.49770	Overall Satisfaction	.53885
8. How happy are you with the appearance of the cafeteria?	Overall Satisfaction	.61822	Overall Satisfaction & Factor 10	.42219 .59703
9. The quality of the menu choices is	Overall Satisfaction	.60037	Overall Satisfaction	.58924
10. The quality of the hot entrees is	Overall Satisfaction	.59298	Overall Satisfaction	.53107
11. The quality of the desserts is	Dessert	.61686	Factor 10	.48925
12. The quality of the salads is	Vegetable/Salads	.56048	Factor 11	.69662
13. The quality of the cooked vegetables is	Vegetable/Salads	.46327	Atmosphere	.41921
14. The quality of the cold sandwiches (such as peanut butter or hoagies) is	Vegetable/Salads	.38242	Factor	
15. The quality of the brands offered is	Overall Satisfaction	.51399	Overall Satisfaction	.60220
16. The quality of the ingredients used is	Overall Satisfaction & Vegetable/Salads	.51135 .40958	Overall Satisfaction	.51314
17. The appearance of the food is	Overall Satisfaction	.62825	Overall Satisfaction	.53807
18. The aroma of the food is	Overall Satisfaction	.56220	Promotions	.43203
19. The flavor of the food is	Overall Satisfaction	.55376	Overall Satisfaction	.48883
20. The fresh fruits are high quality	Vegetable/Salads	.40790	Promotions	.43480
21. My favorite foods are always the same quality	Overall Satisfaction	.47848	Atmosphere	.42243
22. Many food choices are available	Overall Satisfaction	.45236	Overall Satisfaction & Variety	.41025 .46504
23. The choices of food available allow me to meet religious preferences	Diversity	.69452	Diversity	.67174
24. The choices of food allow me to meet special dietary needs such as low fat or diabetes	Diversity	.58559	Diversity	.67185

	Middle		High	
Question	Factor	Factor Loading	Factor	Factor Loading
25. The choices of food allow me to meet my ethnic and cultural preferences	Diversity	.66112	Diversity	.69777
26. Popular menu items are offered weekly			Diversity	.45331
27. There are choices of milk each day in the cafeteria	Dessert & Variety	.44082 .41967		
28. Single item foods are available for purchase separately from a meal (such as just buying ice cream)	Extended Services	.70011	Extended Services	.47813
29. Assorted fresh fruits are available daily	Extended Services	.57685	Extended Services	.45515
30. The cafeteria runs out of a food item	Extended Services	.50155	Factor 10	.59986
31. There are dessert choices on the menu each day	Dessert	.702011	Extended Services	.72981
32. The school menu includes food I like	Overall Satisfaction	.52625	Overall Satisfaction & Extended Services	.47080 .47382
33. Vegetarian meals are offered	Nutrition	.43074	Extended Services	.54320
34. School cafeteria prices are reasonable for the portions served	Cost	.56564	Cost	.67665
35. Eating in the cafeteria fits into my weekly budget	Cost	.51323		
36. Nutritious foods are available daily	Nutrition	.42084	Nutrition	.50571
37. Low fat food items are offered daily	Nutrition Diversity	.47055 .45365	Nutrition	.56212
38. The serving size satisfies me				
39. Nutrition information on food products is posted	Nutrition	.70618	Nutrition	.66465
40. Meals are designed for healthy eating	Nutrition	.55395	Promotions & Nutrition	.48905 .54546
41. Information on calories contained in foods is available	Nutrition	.74503	Nutrition	.55598
42. Information on fat contained in foods is available	Nutrition	.76487	Nutrition	.59997
43. The atmosphere in the cafeteria is cheerful/upbeat	Atmosphere	.57084	Factor 12	.45413
44. Cafeteria serving lines are clean	Atmosphere	.62541	Atmosphere	.70335
45. The noise level in the dining area is OK	Atmosphere	.64361	Atmosphere	.77626
46. Tables in the dining area are clean	Atmosphere	.69109	Atmosphere	.64818
47. Spills and trash in the dining area are cleaned quickly	Atmosphere	.72235	Atmosphere	.53802
48. Adequate supervision is present in the cafeteria	Atmosphere	.65137	Atmosphere	.42377
49. Decorations are bright and cheerful	Atmosphere	.53933	Promotions	.50747
50. I always have a place to sit	Seating	.67035	Extended Services	.43116
51. The seating arrangement allows me to talk to my friends	Seating	.57620	Extended Services	.59982

	Middle		High	
Question	Factor	Factor Loading	Factor	Factor Loading
52. The attitude of the cafeteria staff is	Staff	.68835	Staff	.70449
53. The appearance of the cafeteria staff is	Staff	.71018	Staff	.74620
55. Cafeteria staff are clean and neat	Staff	.67801	Staff	.67257
53. The appearance of the cafeteria staff is	Staff	.71018	Staff	.74620
55. Cafeteria staff are clean and neat	Staff	.67801	Staff	.67257
56. Cafeteria staff listen to the students	Staff	.74078	Staff	.77435
57. Cafeteria staff smile and greet me when I am served	Staff	.74682	Staff	.81536
58. Cafeteria staff answer my questions	Staff	.69999	Staff	.77686
59. Cafeteria staff are friendly	Staff	.78292	Staff	.81085
60. Cafeteria staff treat me with respect	Staff	.75512	Staff	.83907
61. The serving line moves quickly	Time	.37521		
62. The time available to eat once seated is adequate	Time	.76081	Time	.86742
63. The number of serving lines is adequate	Time	.52568	Time	.42879
64. Overall, time given for meals is adequate	Time	.68120	Time	.82922
65. Special events and promotions are offered frequently	Promotions	.53823	Promotions	.70788
66. Theme days are offered in the cafeteria	Promotions	.38927	Promotions	.70389
67. Cafeteria decorations for theme days/special events encourage me to eat	Promotions	.55379	Promotions	.64928
68. Menus are posted which allows me to make choices	Time	.41284	Promotions	.46654
69. My parents know what is served	Promotions	.46608	Promotions	.51430
70. Foods look appetizing	Overall Satisfaction	.50908	Overall Satisfaction & Promotions	.47926 .47926
71. Hot entrees are appetizing	Overall Satisfaction	.52718	Overall Satisfaction	.44112
72. Vegetables are appetizing	Vegetable/Salads	.63104	Promotions	.52791
73. Salads are appetizing	Vegetable/Salads	.72008		
74. Cold sandwiches (such as peanut butter or hoagies) are appetizing	Vegetable/Salads	.52806	Promotions	.51396
75. Foods on the serving line are decorated	Promotions	.42878	Promotions	.77052
76. Meals are served attractively	Overall Satisfaction & Promotions	.46203 .40215	Promotions	.79877
77. When I go through the serving line, I see foods with a variety of colors	Overall Satisfaction	.41306	Promotions	.68822

Note: Blank cells did not factor at .45 or above

% of variance middle/junior high = 65.5

% of variance for high school = 65.7

Table 2

**Factor Questions and Reliability
First Pilot**

Factor	Alpha level	Question
Satisfaction	.9436	How happy are you with the school cafeteria
		How happy are you with the variety of food offered
		How happy are you with what you get for what you pay
		How happy are you with the quality of the brands offered
		How happy are you with the nutritional value of the food offered
		How happy are you with the appearance of the cafeteria
		The quality of the menu choices is
		The quality of the hot entrees is
		The quality of the brands offered is
		The quality of the ingredients used is
		The appearance of the food is
		The aroma of the food is
		The flavor of the food is
		The school menu includes food I like
		Hot entrees are appetizing
Staff	.9233	The appearance of the cafeteria staff is
		Cafeteria staff are courteous
		Cafeteria staff listen to students
		Cafeteria staff smile and greet me when I am served
		Cafeteria staff answer my questions
		Cafeteria staff treat me with respect
		Tables in the dining area are clean
		Spills and trash in the dining area are cleaned quickly
		Adequate supervision is present in the dining area

Factor	Alpha level	Question
Atmosphere	.8564	The atmosphere in the cafeteria is
		Cafeteria serving lines are clean
		The noise level in the dining area is
Nutrition	.8774	Nutrition information on food products is posted
		Meals are designed for healthy eating
		Information on calories contained in food is available
		Information on fat contained in food is available
Salad/Veg	.8323	Vegetables are appetizing
		Salads are appetizing
		Cold sandwiches (such as peanut butter or hoagies) are appetizing
Diversity	.8327	The choices of food available allow me to meet special dietary needs such as low fat or diabetes
		The choices of food allow me to meet my ethnic and cultural preferences
		The choices of food available allow me to meet religious preferences
Time	.8644	The time available to eat once seated is adequate
		The number of serving lines is adequate
		Total time given for meal periods is OK
Promotions	.7367	Special events and promotions are offered
		Cafeteria decorations for theme days encourage me to eat

n= 343

Table 3

School Profiles

State	Average Daily Attendance	% Free Meals	% Reduced Price Meals
Massachusetts	397	5	2
Texas	1030	23	10
	1328	49	13
	1004	29	13
	1210	45	9
	1026	20	6
	855	3	2
	1068	1	.5
	892	8	5
California	1200	50	20
Illinois	1158	29	6
Arizona	738	20	5
New Hampshire	585	15	5
	410	21	17

N = 2,566

Table 4

Student Demographics

Demographic	"Have a Choice"		"Have no Choice"	
Grade	6th	439	6th	129
	7th	458	7th	198
	8th	407	8th	165
	missing	21	missing	10
Sex	Male	631	Male	258
	Female	665	Female	231
	missing	29	missing	13

n = 1,827

Table 5

**Factor Loading Score
Second Pilot**

Factor	Question	Factor Loading
Food Quality	7. The school menu includes food I like.	.71384
	8. Main dishes on the serving line(such as spaghetti or chicken) look good.	.63056
	12. I like how the food smells.	.69057
	13. Salads on the serving line look good.	.47367
	16. I like the quality of the ingredients used in the food.	.62802
	26. I like how the food looks.	.74819
	30. I like the taste of the food.	.73551
	33. Vegetables on the serving line look good.	.53837
	34. I like the quality of the food choices.	.67217
	35. Cold sandwiches (such as peanut butter or subs) look good.	.45996
	37. The choices of food allow me to pick food like I eat at home.	.60230
	38. I like the quality of the main dishes (such as spaghetti and chicken).	.59326
	43. I like the choices of food offered.	.69417
	44. Cafeteria decorations for special events encourage me to eat.	.45012
	46. The choices of food allow me to meet my religious needs.	.42563
	47. I like the quality of the brands offered.	.57993
Ambiance	15. The dining area is cheerful/upbeat.	.55473
	17. The food serving lines are clean.	.58784
	18. The noise level in the dining area is OK.	.67417
	19. Spills and trash in the dining are cleaned quickly.	.62049
	20. Students are not allowed to misbehave in the dining area.	.59297
	22. The dining area temperature is comfortable.	.49040

Factor	Question	Factor Loading
	27. Tables in the dining area are clean.	.59029
	41. I like how the dining area looks.	.45297
Time/Events	36. The time given to eat once seated is OK.	.73312
	39. The choices of food allow me to meet special dietary needs (such as a low fat or diabetic diet).	.50318
	40. Total time given for meal periods is OK.	.73649
	41. I like how the dining area looks.	.45710
	42. Special events and prizes are offered.	.43179
Staff	9. Servers and cashiers are polite.	.84046
	14. Servers and cashiers treat me with respect.	.81745
	21. I like how the servers and cashiers look.	.48398
	24. Servers and cashiers listen to the students.	.58128
	28. Servers and cashiers smile and greet me when I am served.	.67828
	32. Servers and cashiers answer my questions.	.50987
Nutrition	11. Information on fat in foods is available.	.74491
	23. Nutrition information on food products is posted.	.76910
	31. Information on calories in food is available.	.70052
Price	10. School foodservice prices are OK for what I get.	.72498
	29. Meal prices are reasonable.	.70761

n = 1,732

Table 6

**Factors and Reliability
Final Survey**

Factor	Alpha Level	Question
Food Quality	.9208	7. The school menu includes food I like.
		8. Main dishes on the serving line (such as spaghetti or chicken) look good.
		12. I like how the food smells.
		26. I like how the food looks.
		30. I like the taste of the food.
		33. Vegetables on the serving line look good.
		34. I like the quality of the food choices.
		37. The choices of food allow me to pick food like I eat at home.
		38. I like the quality of the main dishes (such as spaghetti and chicken).
		43. I like the choices of food offered.
		47. I like the quality of the brands offered.
Ambiance	.7748	15. The dining area is cheerful/upbeat.
		17. The food serving lines are clean.
		18. The noise level in the dining area is OK.
		19. Spills and trash in the dining area are cleaned quickly.
		20. Students are not allowed to misbehave in the dining area.
		27. Tables in the dining area are clean.
Price	.8130	10. School foodservice prices are OK for what I get.
		29. Meal prices are reasonable.
Staff	.8383	9. Servers and cashiers are polite.
		14. Servers and cashiers treat me with respect.
		24. Servers and cashiers listen to the students.
		28. Servers and cashiers smile and greet me when I am served.
Time	.8224	36. The time given to eat once seated is OK.
		40. Total time given for meal periods is OK.

n= 1,732

Table 7

Tukey-HSD Procedure
Factor Multiple Comparison for Eating Frequency

Variable	n of Cases	Group	Mean ± SD	Group Comparison	
				Never eats	Eats 1-3 times per week
Satisfaction	198	Never eats	3.8939 ± 2.3574		
	524	Eats 1-3 times week	4.1546 ± 1.8074	*	
	1215	Eats 4-5 times week	4.7062 ± 1.8860	*	*
Food Quality	217	Never eats	2.7037 ± 1.3509		
	563	Eats 1-3 times week	3.2293 ± 1.2741	*	
	1280	Eats 4-5 times week	3.5958 ± 1.3893	*	*
Ambiance	217	Never eats	3.7657 ± 1.5125		
	563	Eats 1-3 times week	4.0135 ± 1.3461		
	1280	Eats 4-5 times week	4.3445 ± 1.3808	*	*
Price	217	Never eats	3.1509 ± 1.8034		
	563	Eats 1-3 times week	3.3472 ± 1.7349		
	1280	Eats 4-5 times week	3.6938 ± 1.8517	*	*
Staff	217	Never eats	3.8796 ± 1.7156		
	563	Eats 1-3 times week	3.9481 ± 1.5812		
	1280	Eats 4-5 times week	4.2532 ± 1.7155	*	*
Time	217	Never eats	2.7159 ± 1.8827		
	563	Eats 1-3 times week	2.7156 ± 1.6550		
	1280	Eats 4-5 times week	3.0740 ± 1.8723	*	*

* Denotes pairs of groups significantly different at the .05 level

Table 8

Analysis of Variance Between Male and Female

Variable	Group	n of Cases	Mean	Standard Deviation	T-value	2-Tail Probability
Satisfaction	Male	955	4.2387	1.942		
	Female	1016	4.7087	1.877	-5.46	.000***
Food Quality	Male	1032	3.3632	1.430		
	Female	1084	3.461	1.331	-1.63	.103
Ambiance	Male	1032	4.0401	1.450		
	Female	1084	4.3474	1.304	-5.13	.000***
Price	Male	1032	3.3013	1.842		
	Female	1084	3.7828	1.765	-6.14	.000***
Staff	Male	1032	4.0819	1.736		
	Female	1084	4.1959	1.639	-1.55	.121
Time	Male	1032	3.0184	1.899		
	Female	1084	2.8875	1.769	1.64	.101

***p <.001

Table 9

**Tukey-HSD Procedure
Multiple Comparison By Grade**

Variable	Group	n of Cases	Mean ± SD	Group Comparison	
				6th Grade	7th Grade
Satisfaction	6th	635	4.8976 ± 1.7939		
	7th	724	4.4227 ± 1.9306	*	
	8th	626	4.0942 ± 1.9861	*	*
Food Quality	6th	678	3.7882 ± 1.4122		
	7th	776	3.2835 ± 1.3485	*	
	8th	678	3.1448 ± 1.3081	*	
Ambiance	6th	678	4.4597 ± 1.3732		
	7th	776	4.0038 ± 1.4179	*	
	8th	678	4.1262 ± 1.3375	*	
Price	6th	678	3.7832 ± 1.8782		
	7th	776	3.4922 ± 1.8368	*	
	8th	678	3.3390 ± 1.7154	*	
Staff	6th	678	4.3732 ± 1.6883		
	7th	776	4.0070 ± 1.7159	*	
	8th	678	4.0723 ± 1.6382	*	
Time	6th	678	3.2932 ± 1.9239		
	7th	776	2.8232 ± 1.8322	*	
	8th	678	2.7306 ± 1.6837	*	

* Denotes pairs of groups significantly different at the .05 level

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Appendix A

We want to know about you.

- ☐ 0 10 years
☐ 1 11 years
☐ 2 12 years
☐ 3 13 years
☐ 4 14 years
☐ 5 15 years or over

PC5 1097-252-54321 TO REORDER 1-800-722-6876



Middle/Junior High School Foodservice Survey Comment Sheet

What one thing do you like best about your school foodservice and nutrition program that you would **never** want changed? _____

If you could change one thing about your school foodservice and nutrition program, what would it be? _____

Please check one of the following that best fits how often you eat food provided by the school foodservice program.

- _____ Never
_____ 1-3 times per week
_____ 4-5 times per week



National Food Service Management Institute

Division of Applied Research
The University of Southern Mississippi
Box 10077 • Hattiesburg, MS 39406-0077
601-266-5773 • FAX: 601-266-4682

April 2, 1997

Dear Students,


You have been chosen to participate in a school foodservice survey project. The survey is designed to analyze your likes and dislikes with the school foodservice. Questions will cover food, services and dining area atmosphere.

Please complete this survey whether you eat or do not eat food served by the school foodservice. It is important that you answer the questions based on **your opinions**. Please answer all questions on the computer scan sheet using a #2 pencil. In the top right corner of the survey you will find a box for the school code. Your school code is . Please complete the school code box. Also, complete the separate comment sheet. The comment question is designed for you to be able to give specific and meaningful information to the foodservice director.

Your participation with this project is voluntary and is greatly appreciated. Your response to the survey questionnaire will be helpful to your foodservice director to better meet your foodservice needs following the federally funded Child Nutrition Program guidelines.

Thank you for your assistance.

Sincerely


Mary Kay Meyer, PhD, RD
Research Scientist

BUILDING THE FUTURE THROUGH CHILD NUTRITION

A Division of the National Food Service Management Institute • The University of Mississippi
P.O. Drawer 188 • University, MS 38677-0188 • 601-232-7658 • FAX 601-232-5615



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January 30, 1997

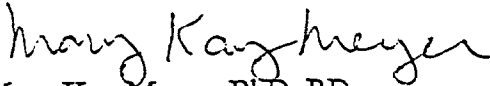
Dear Principals and Teachers,

The National Food Service Management Institute, Division of Applied Research is involved in a study to develop and test a Student Satisfaction Survey. The survey will determine middle/junior high school students' perceptions regarding the quality of food and services in their local school food service program. Our goal is to develop a customer driven survey process that will support local school districts' nationwide in the enhancement of their school food service programs.

We are very pleased to announce that your school district has been selected to participate in a test of the survey. This test is a part of the research and development process that will help to increase the validity of the survey instrument. Please allow students to complete the survey during homeroom or a more appropriate academic class. This process will take approximately 15-20 minutes to complete. Enclosed is a letter of instructions for you to read to students explaining the survey. We ask that all students in the selected classes participate in the survey. It is important that students are not overtly identified based on their meal classification or participation in the school food service program.

Thank you for your support of this endeavor. We could not complete this study without dedicated educators such as yourself who realize the importance of the school food service program and the role the program plays in the cognitive development of our youth.

Sincerely,


Mary Kay Meyer, PhD, RD
Research Scientist

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Appendix B



PLEASE ANSWER THE FOLLOWING QUESTIONS
ABOUT YOUR SCHOOL FOODSERVICE AND
NUTRITION PROGRAM WHETHER YOU EAT
SCHOOL LUNCH OR NOT.

LD.		0	1	2	3	4	5	6	7	8	9
NU.		0	1	2	3	4	5	6	7	8	9
MB.		0	1	2	3	4	5	6	7	8	9
BE.		0	1	2	3	4	5	6	7	8	9
ER.		0	1	2	3	4	5	6	7	8	9

Fill in this number as instructed by your teacher.

COMPLETELY FILL IN THE CIRCLE OF YOUR ANSWER.
USE A #2 PENCIL.

Are you happy with the school foodservice and nutrition program?

HOW HAPPY ARE YOU WITH THE SCHOOL FOODSERVICE AND
NUTRITION PROGRAM? PLEASE FILL IN YOUR ANSWER USING THE
FOLLOWING SCALE:

1 = VERY UNHAPPY TO 7 = VERY HAPPY 8 = I DON'T KNOW

①	②	③	④	⑤	⑥	⑦	⑧
VERY UNHAPPY			NEITHER HAPPY NOR UNHAPPY			VERY HAPPY	I DON'T KNOW
①	②	③	④	⑤	⑥	⑦	⑧

1. How happy are you with the foodservice overall?

How would you rate your school foodservice concerning the following?

PLEASE RATE THESE STATEMENTS ABOUT YOUR SCHOOL FOODSERVICE
ON A SCALE OF:

1 = STRONGLY DISAGREE TO 7 = STRONGLY AGREE 8 = I DON'T KNOW

①	②	③	④	⑤	⑥	⑦	⑧
STRONGLY DISAGREE			NEITHER AGREE NOR DISAGREE			STRONGLY AGREE	I DON'T KNOW
①	②	③	④	⑤	⑥	⑦	⑧

2. The school menu includes food I like.
3. Main dishes on the serving line (such as spaghetti or chicken) look good.
4. Servers and cashiers are polite.
5. School foodservice prices are OK for what I get.
6. I like how the food smells.
7. Servers and cashiers treat me with respect.
8. The dining area is cheerful/upbeat.
9. The food serving lines are clean.
10. The noise level in the dining area is OK.
11. Spills and trash in the dining area are cleaned quickly.
12. Students are not allowed to misbehave in the dining area.
13. Servers and cashiers listen to the students.
14. I like how the food looks.
15. Tables in the dining area are clean.
16. Servers and cashiers smile and greet me when I am served.
17. Meal prices are reasonable.
18. I like the taste of the food.
19. Vegetables on the serving line look good.
20. I like the quality of the food choices.
21. The time given to eat once seated is OK.
22. The choices of food allow me to pick food like I eat at home.
23. I like the quality of the main dishes (such as spaghetti and chicken).
24. Total time given for meal periods is OK.
25. I like the choices of food offered.
26. I like the quality of the brands offered.

NOV 14 1997

27. The number one reason I eat school breakfast is:
(mark only one)

- ☐ The prices are good ☐ My parents make me
☐ The food is good ☐ The popular kids eat there
☐ It is convenient ☐ I have no other choice
☐ My teachers encourage me ☐ We do not have a breakfast program
☐ My friends eat there ☐ I do not eat breakfast at school

28. The number one reason I eat school lunch is:
(mark only one)

- ☐ The prices are good ☐ My parents make me
☐ The food is good ☐ The popular kids eat there
☐ It is convenient ☐ I have no other choice
☐ My teachers encourage me ☐ I do not eat school lunch
☐ My friends eat there

29. How many times per week do you eat school breakfast?

0 1 2 3 4 5

30. How many times per week do you eat school lunch?

0 1 2 3 4 5

31. How many times per week do you bring your lunch?

0 1 2 3 4 5

32. What is your grade in school?

- ☐ 6th grade
☐ 7th grade
☐ 8th grade

33. What is your gender?

- ☐ Male
☐ Female

34. What is your approximate age:

- ☐ 10 years
☐ 11 years
☐ 12 years
☐ 13 years
☐ 14 years
☐ 15 years or over

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